

## Sea Ice Flux Through Fram Strait

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We estimate the sea ice export through Fram Strait using ice motion data derived from satellite passive microwave imagery and ice draft observations from upward-looking sonar (ULS) data. The derived ice motion record, from 1978 to present, is approximately 19 years in length. Here, we estimate only the winter area and volume flux over this period because ice motion from passive microwave data tend to be unreliable during the summer. Results show that an average of 7% of the area of the Arctic Ocean or 700,000 km<sup>2</sup> is exported through the Fram Strait in the winter. Daily, monthly and interannual variabilities of the ice area flux are quite high. The winter area flux ranges from a minimum of 503,000 km<sup>2</sup> in 1984 to a maximum of 932,000 sq km in 1995. Ice volume export is estimated for the winters of 1992 and 1993 when ice draft data from upward looking sonar (ULS) are available. As an initial estimate, we compute the volume flux by multiplying the cross-strait ice motion profile with a thickness profile which we assume to be constant across the strait. The thickness is taken to be 8/7 of the ice draft. The winter volume ice flux are as follows: **2300** km<sup>3</sup> and **2700** km<sup>3</sup>, for the winters of 1992 and 1993, respectively. We plan to extend our analysis to estimate annual area and volume flux over this period by combining these data with modeled summer motions and year-round thickness in Fram Strait.

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